

March 15, 2005

Barry S. Drucker
Minerals Management Service
381 Elden Street, MS 4030
Herndon, VA 20170-4817

Dear Mr. Drucker:

This is the eighteenth Bi-Monthly Status Letter for Cooperative Agreement Number 1435-01-02-CA-85050, *Field Testing of a Physical/Biological Monitoring Methodology for Offshore Dredging and Mining Operations*.

Task 1: Biology: Bob Diaz and Christina Tallent report that they have completed quality control for all data from the 2002, 2003, and 2004 Sandbridge samplings. These completed data sets include information from benthic grabs, sediment content, fish gut content, stable isotope analysis (both invertebrates and fish), and video transect analyses. The sediment profile image (SPI) data analysis is near completion, therefore not included. They will continue to move forward in working up data for a report as well as planning for the upcoming sample trip this Spring/Summer season. Several data files are appended to this report.

Task 2: Shoreline and Beach Studies: Scott Hardaway and Donna Milligan provided the following report.

The final report is underway. The following is an overview.

The protocol lists the spatial boundaries as a total of 5 times the shoreline projected alongshore extent of the borrow area in both the updrift and downdrift direction with profiles every 1,000 ft. Temporal boundaries include twice yearly surveys for at least 10 years from the dredging event. However, the surveying effort only extended from the southern border of Sandbridge to the Dam Neck line. When it was possible, ATV surveying continued into Navy property at Dam Neck. But this only accounts for a 2-3 times the projected alongshore extent of the borrow area.

We surveyed the beach in June 2002 at approximately 1,000 ft intervals. This data set will be tied to the swath bathymetry taken near the same time. In order to not duplicate efforts, we did not plan any more cross-shore surveys since Waterway Surveys & Engineering, Ltd. surveyed before and after the beach fill project in 2002-2003 and after Hurricane Isabel impacted this region in September 2003. Water Surveys & Engineering, Ltd. has a contract with the City of Virginia Beach to continue monitoring the beach at Sandbridge twice yearly. These data are

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available for analysis. In fact, Waterway Surveys & Engineering, Ltd. has been involved in monitoring the beach nourishment projects at Sandbridge Beach since 1998. Topographic data are taken at 500 ft intervals and hydrographic data at 1,000 ft intervals. The data are processed in ISRP and Excel. Their available data were taken on:

1998 1) Pre and 2) Post Beach Fill, 3) Post Hurricane Bonnie
2003 4) Pre (Dec 2002) and 5) Post Beach Fill, 6) Post Hurricane Isabel
2004 7) May

From these data, a mean high water position was determined. These data were imported into GIS to create an alongshore MHW line also plotted on the 1994 DOQQ for comparison.

We put our effort into monitoring the beach more regularly through the use of Real-Time Kinematic Global Positioning System and an all-terrain vehicle. Generally, four to five alongshore lines were run along the beach at the low water line, mid beach, berm crest, and backshore. Data were collected at 5-10 m increments. These data were processed in Terramodel and the position of mean high water line (defined as +0.3 m NAV88) shape file was exported. These shorelines were imported to ArcMap and plotted on the 1994 DOQQ for comparison. The dates for these ATV runs are:

2002 August, November
2003 February, March, May, July, August
2004 March, May, June, July October, November

In addition to analyzing recent data for trends in shoreline change, we also looked at historic data and reports for Virginia's Southeast coast. Dr. David Basco from Old Dominion University has a data set of wading depth profiles taken monthly at various alongshore intervals at Sandbridge Beach between 1990 and 1999. These data have been analyzed for the position of MHW and have been plotted in GIS.

In addition, five to seven dates of historical and aerial photography between 1937 and 2002 were ortho-rectified and their MHW shoreline positions digitized. All of these shoreline positions will be analyzed using a custom ArcView extension that allows us to calculate the distance to the shoreline from an arbitrary baseline. Using this method we can calculate various statistics on the data sets including rate of shoreline change.

The City of Virginia Beach surveyed the beach at Sandbridge regularly in the 1980s. These data was analyzed in detail by Shore Studies Program in a previous report to MMS. Those findings will be summarized, but not necessarily redone. We feel the data are too widely spaced to convert to a MHW shoreline. However, the long profiles allow us to determine shoreface changes.

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In order to make a recommendation of the appropriateness of the protocol, we not only needed to take our experience into consideration, but also the experience of other states that already have monitoring programs in place. To that end, we have created a matrix of information regarding each state's present efforts regarding monitoring of their shorelines and projects. By far, Florida has the most comprehensive monitoring protocol of any state.

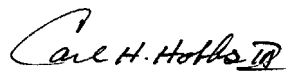
For this report, a detailed literature search was performed regarding beach monitoring of nourishment projects. In addition to summarizing the recommendations of other researchers, we will put them in context of the protocol.

Task 3: Bottom Imagery and Bathymetry: Jesse McNinch reports that the chapter regarding the role of non-traditional influences on shoreline change is near completion. This chapter, which will also be submitted to the Journal of Marine Geology in the coming weeks, will explicitly address the influence of framework geology on shoreline change and highlight the potential inadequacy of monitoring only bathymetry and wave parameters on the inner-shelf. A final integration of the geologic framework and the shoreline measurements from the Sand Bridge case study will be completed in the coming weeks for the final report.

Task 4: Wave Studies: Jerome Maa reports that he planned to deploy a star wave gage at Virginia Beach in January, but this was postponed for logistical reasons. The revised plan is to deploy the gage for a month beginning in early March. He plans to use the data from this exercise to calibrate the computing schemes. He also is ready to install remote communications devices. Tim Gass is working on this issue. Ho Kyung Ha completed work on a web display of random wave images (the web site is <http://www.vims.edu/physical/projects/diwasp/>). During the next two months, Dr. Maa will concentrate on data analysis and also prepare the report.

Task 5: Project Management: I have little to report in terms of project management. The cooperating investigators are working on the final report and there are no specific problems. As always, should you desire any additional information, please do not hesitate to contact any of us involved with the project.

Sincerely,

A handwritten signature in cursive script, reading "Carl H. Hobbs, III".

Carl H. Hobbs, III
Associate Professor and Project Manager

data files attached